

U.S. Patent Application No. 09/945,354  
Amendment dated May 24, 2005  
Response to Office Action of February 24, 2005

**REMARKS/ARGUMENTS**

Reconsideration and continued examination of the above-identified application are respectfully requested.

In the Office Action dated February 24, 2005 in the above-identified application, claims 1-10 and 16-83 were rejected and claims 11-15 were withdrawn from consideration. In this Amendment, dependent claims 28, 29, 34 - 44, and 63 - 69 are amended for greater clarity by changing "carbonaceous material" to "carbon-clad metal oxide particles" and an informality in claim 56 is corrected. The amendments are fully supported by the present specification and the claims as originally filed and do not introduce new matter. Entry of the amendment is respectfully requested.

**Conflict of claims 1 - 10 with claims 1 - 10 of U.S. Patent Application No. 09/654,182**

At page 2 of the Office Action, the Examiner alleged that claims 1 - 10 conflict with claims 1 - 10 of U.S. Patent Application No. 09/654,182. For the following reasons, the position taken by the Examiner is respectfully traversed.

It is respectfully submitted that the present claims are directed to a particular type of particle that is not required in the claims of U.S. Patent Application No. 09/654,182, since the present claims require carbon-clad metal oxide particles, whereas the claims of U.S. Patent Application No. 09/654,182 are directed to carbonaceous material and do not require metal oxide particles. Accordingly, claims 1 - 10 do not conflict with claims 1 - 10 of U.S. Patent Application No. 09/654,182, and there is no basis for the Examiner's requirement that claims 1 - 10 be canceled in either the present application or in U.S. Patent Application No. 09/654,182. Accordingly, this requirement should be withdrawn.

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**Rejection of claims 16 - 83 under the judicially created doctrine of obviousness-type double patenting over claims 1 - 10 and 16 - 49 of U.S. Patent Application No. 09/654,182**

At page 3 of the Office Action, claims 16 - 83 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claims 1 - 10 and 16 - 49 of U.S. Patent Application No. 09/654,182. The Examiner alleged that the present claims are different from the claims of U.S. Patent Application No. 09/654,182 in that the present claims do not specify that the separation device is for chromatography, which the Examiner alleged is described in the copending application. For the following reasons, this rejection is respectfully traversed.

In an obviousness-type double patenting determination, a claim comparison is only made, and no reliance is made on the specification for a teaching or suggestion. As discussed above, there is a non-obvious difference in the material recited in the claims of U.S. Patent Application No. 09/654,182 and the material recited in claims 16 - 83 of the present application in that the claims of U.S. Patent Application No. 09/654,182 contain absolutely no specific recitation of metal oxide particles in the claims, which are a requirement in claims 16 - 83 of the present application. Accordingly, claims 16 - 83 would not have been obvious over claims 1 - 10 and 16 - 49 of U.S. Patent Application No. 09/654,182. Therefore, the rejection should be withdrawn.

**Rejection of claims 1 - 10 and 16 - 83 under 35 U.S.C. 103(a) over Boes et al. in view of Betz et al.**

At page 4 of the Office Action, claims 1 - 10 and 16 - 83 are rejected under 35 U.S.C. §103(a) as obvious over Boes et al. (U.S. Patent No. 5,807,494) in view of Betz et al. (U.S. Patent No. 5,653,875). The Examiner alleged that Boes et al. discloses the formation of a gel

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composition having carbon with an organic group attached to the carbon and that the groups are similar to those claimed. The Examiner acknowledges that Boes et al. does not teach the use of the material of Boes et al. in chromatography, but alleges that Betz et al. teaches the use of carbon containing adsorbents in chromatography. The Examiner takes the position that it would have been obvious to modify the disclosure of Boes et al. with the teachings of Betz et al. because Betz et al. teaches that carbon compounds can be used for chromatography. For the following reasons, this rejection is respectfully traversed.

The material of Boes et al. is clearly not the same as the material of the claimed invention. Boes et al. relates to a gel that is formed by a sol-gel reaction in which a carbonaceous component such as a modified carbon black product is added to the sol (see Example 12 of Boes et al.), so that the carbonaceous component becomes attached and incorporated into the gel. The material of the claimed invention, on the other hand, comprises carbon-clad metal oxide particles, which are described, for instance, in the present specification at page 9, line 4 to page 10, line 25 as being particles that have an outer layer, sheath, coating or cladding of pyrolytic carbon bonded or otherwise integrally attached to the underlying metal oxide particle. Accordingly, there is a distinct and non-obvious difference between the material of the present invention and the material of Boes et al. Moreover, all of the examples and claims of Boes et al. relate to gel compositions wherein the gel component is silica, whereas the present specification specifically states that the term "metal oxide particles" does not include silica. See page 6, lines 26-27 of the present application. Betz et al. also does not teach or suggest carbon-clad metal oxide particles and accordingly does not overcome the deficiencies of Boes et al. Accordingly, since the material of the claimed invention and the material of Boes et al. are different, the combination of Boes et al. with Betz et al. would not result in the chromatography column of the

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present invention. Clearly, therefore, claims 1 - 10 and 16 - 83 are not obvious over Boes et al. or Betz et al., either taken alone or in any combination.

Moreover, even if the material of Boes et al. could be combined with the structure of Betz et al., the Examiner has not provided any motivation for doing so. The Examiner acknowledged that Boes et al. does not teach or suggest the use of its gel compositions for chromatography. The Examiner cited Betz et al., which mentions structures such as chromatographic column walls and fibers that have carbon, zeolite, alumina, silica or organic polymers bound onto it, for its alleged teachings of the use of carbon-containing adsorbents in chromatography, but has not provided any motivation to combine the material of Boes et al. with the teachings of Betz et al. The use of carbon, zeolite, alumina, silica or organic polymers on walls of Betz et al. would not be combinable with Boes et al. that uses sol gel, but not on a wall. The technologies are different and not combinable. Accordingly, neither Boes et al. nor Betz et al., alone or in combination provide any motivation to use a carbon product having attached organic groups, or specifically, the carbon-clad metal oxide particles of the present invention, for chromatography and claims 1 - 10 and 16 - 83 are not obvious over Boes et al. or Betz et al. for this additional reason. Therefore, the rejection should be withdrawn.

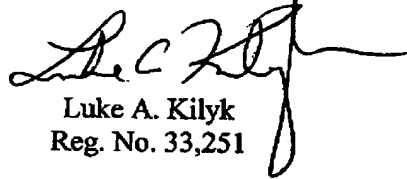
### **CONCLUSION**

In view of the foregoing remarks, Applicants respectfully request the reconsideration of this application and the timely allowance of the pending claims.

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If there are any other fees due in connection with the filing of this response, please charge the fees to Deposit Account No. 03-0060. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and should also be charged to said Deposit Account.

Respectfully submitted,



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